

We claim:

1. A substantially purified nucleic acid molecule comprising a nucleic acid sequence wherein the nucleic acid sequence:

- 5           i)       hybridizes under stringent conditions with a sequence selected from the group consisting of SEQ ID NO:1 through 57,467, and the complements thereof; or
- ii)       exhibits an 85% or greater identity to a sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

10           2.       The nucleic acid molecule of claim 1, wherein the nucleic acid sequence exhibits a 90% or greater identity to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

15           3.       The nucleic acid molecule of claim 1, wherein the nucleic acid sequence exhibits a 95% or greater identity to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

20           4.       The nucleic acid molecule of claim 1, wherein the nucleic acid sequence exhibits a 99% or greater identity to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

             5.       The nucleic acid molecule of claim 1, wherein the nucleic acid sequence comprises a sequence selected from the group consisting of SEQ ID NO:1 through

57,467.

6. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule is operably linked to a heterologous structural nucleic acid sequence.

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7. The nucleic acid molecule of claim 6, wherein the structural nucleic acid sequence encodes a protein selected from the group consisting of a yield protein, a stress resistance protein, a developmental control protein, a tissue differentiation protein, a meristem protein, an environmentally responsive protein, a senescence protein, a hormone responsive protein, an abscission protein, a source protein, a sink protein, a flower control protein, a seed protein, an herbicide resistance protein, a disease resistance protein, a fatty acid biosynthetic enzyme, a tocopherol biosynthetic enzyme, an amino acid biosynthetic enzyme, and an insecticidal protein.

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8. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule further comprises one or more cis-acting nucleic acid elements.

9. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule further comprises a 5' leader sequence selected from the group consisting of dSSU 5',

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PetHSP70 5', and GmHSP17.9 5'.

10. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule further comprises a 3' untranslated region.

11. The nucleic acid molecule of claim 10, wherein the 3' untranslated region is selected from the group consisting of NOS 3', E9 3', ADR12 3', 7S $\alpha$  3', 11S 3', and albumin 3'.

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12. The nucleic acid molecule of claim 1, wherein the nucleic acid molecule further comprises an intron that is heterologous with respect to the structural nucleic acid sequence.

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13. The nucleic acid molecule of claim 12, wherein the intron is selected from the group consisting of the rice actin intron and the corn HSP70 intron.

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14. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule expresses the structural nucleic acid sequence in an amount greater than 0.5% (w/w) of the total mRNA.

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15. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule expresses the structural nucleic acid sequence in an amount greater than 1% (w/w) of the total mRNA.

16. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule expresses the structural nucleic acid sequence in an amount greater than 2% (w/w) of the

total mRNA.

17. The nucleic acid molecule of claim 1, wherein said substantially purified nucleic acid molecule is operably linked to a heterologous nucleic acid molecule and said  
5 heterologous nucleic acid molecule codes for an mRNA that is complementary to an mRNA that is present in a cell.

18. A transgenic plant containing a nucleic acid molecule that comprises in the 5' to 3' direction:

10 a nucleic acid sequence that:

i) hybridizes under stringent conditions with a sequence selected from the group consisting of SEQ ID NO:1 through 57,467, and the complements thereof; or

ii) exhibits an 85% or greater identity to a sequence selected from the group consisting of SEQ ID NO:1 through 57,467;

15 operably linked to a structural nucleic acid sequence;

wherein the nucleic acid sequence is heterologous with respect to the structural nucleic acid sequence.

19. The transgenic plant of claim 18, wherein the nucleic acid sequence is  
20 90% identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

20. The transgenic plant of claim 18, wherein the nucleic acid sequence is

95% identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

21. The transgenic plant of claim 18, wherein the nucleic acid sequence is  
5 99% identical to a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 through 57,467.

22. The transgenic plant of claim 18, wherein the nucleic acid sequence  
comprises a nucleic acid sequence selected from the group consisting of SEQ ID NO:1  
10 through 57,467.

23. The transgenic plant of claim 18, wherein the structural nucleic acid  
sequence encodes a protein selected from the group consisting of a yield protein, a stress  
resistance protein, a developmental control protein, a tissue differentiation protein, a  
15 meristem protein, an environmentally responsive protein, a senescence protein, a  
hormone responsive protein, an abscission protein, a source protein, a sink protein, a  
flower control protein, a seed protein, an herbicide resistance protein, a disease resistance  
protein, a fatty acid biosynthetic enzyme, a tocopherol biosynthetic enzyme, an amino  
acid biosynthetic enzyme, and an insecticidal protein.

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24. The transgenic plant of claim 18, wherein the nucleic acid molecule  
further comprises one or more cis-acting nucleic acid elements.

25. The transgenic plant of claim 18, wherein the nucleic acid molecule further comprises a 5' leader sequence selected from the group consisting of dSSU 5', PetHSP70 5', and GmHSP17.9 5'.

5 26. The transgenic plant of claim 18, wherein the nucleic acid molecule further comprises a 3' untranslated region.

27. The transgenic plant of claim 26, wherein the 3' untranslated region is selected from the group consisting of NOS 3', E9 3', ADR12 3', 7S $\alpha$  3', 11S 3', and  
10 albumin 3'.

*Rule 1.126* <sup>28</sup>  
27. The transgenic plant of claim 18, wherein the nucleic acid molecule further comprises an intron that is heterologous with respect to the structural nucleic acid sequence.

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28. The transgenic plant of claim <sup>27</sup>~~28~~, wherein the intron is selected from the group consisting of the rice actin intron and the corn HSP70 intron.

<sup>30</sup>  
29. The transgenic plant of claim 18, wherein the plant is rice, sorghum,  
20 maize, barley, or wheat.

<sup>31</sup>  
~~30.~~ The transgenic plant of claim 18, wherein the promoter expresses the

structural nucleic acid sequence in an amount greater than 0.5% (w/w) of the total cellular RNA or protein.

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31. The transgenic plant of claim 18, wherein the promoter expresses the  
5 structural nucleic acid sequence in an amount greater than 1% (w/w) of the total cellular RNA or protein.

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32. The transgenic plant of claim 18, wherein the promoter expresses the  
structural nucleic acid sequence in an amount greater than 2% (w/w) of the total cellular  
10 RNA or protein.

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33. The transgenic plant of claim 18, wherein said nucleic acid molecule is  
operably linked to a heterologous nucleic acid molecule and said heterologous nucleic  
acid molecule encodes an mRNA that is complementary to an mRNA that is present in  
15 said transgenic plant.

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34. A seed from the transgenic plant of claim 18.

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35. A fertile transgenic plant from the seed of claim 18.  
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36. A method of transforming a host cell comprising:

- a) providing a nucleic acid molecule that comprises in the 5' to 3' direction:  
a nucleic acid sequence that:

i) hybridizes under stringent conditions with a sequence selected from the group consisting of SEQ ID NO:1 through 57,467, and the complements thereof; or

ii) exhibits an 85% or greater identity to a sequence selected from the group consisting of SEQ ID NO:1 through 57,467;

5 operably linked to a structural nucleic acid sequence; and

b) transforming said plant with the nucleic acid molecule.

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